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REMARKS

1. Reconsideration in view of the remarks and amendments herein is respectfully requested.

2. Claims 1-17, and 19-30 are remaining with the Application.

Claims 23-30 stand allowed. Claims 2 and 3 stand objected to as based on a rejected base claim, but would be allowable if rewritten in independent form including all of limitations of the base claim and any intervening claims. Claims 1, 4-17, and 19-22 stand rejected.

3. (Referring now to Item 1 of the Official Action) The disclosure stands objected to for the reason that various fatty acids such as oleic, linoleic, linolenic, and palmitic acids are not of vegetable origin. Additionally, the disclosure stands objected to because various acyl groups such as palmitoyl, arachidoyl, behenoyl, myristoyl, and margaroyl are not of vegetable origin. The examples in the application stand objected to for the same reasons.

Applicant hereby submits copies of several pages from the "Fats and Oils Handbook" by Michael Bockish (English Edition), AOCS Press (1998) (***Reference 1***).

Page 64 of and 65 of the text provides vegetable oil sources for many of the above acids or acyl groups. Each of the above mentioned acids or acyl groups can be obtained from vegetable oils such as the following with the relevant page number in parenthesis:

Oleic acid—soybean (229), peanut (251), rapeseed (259), and palm kernel (277);

Linoleic- soybean (229), peanut (251), rapeseed (259), and palm kernel (277);

Linolenic- linseed (65), soybean (229), peanut (251), and rapeseed (259);

Palmitoleic- soybean (229), peanut (251), and rapeseed (259);

Palmitoyl (from palmitic acid)- soybean (229), peanut (251), rapeseed (259), and palm kernel (277);

Stearoyl - soybean (229), peanut (251), rapeseed (259), and palm kernel (277);

Arachidoyl (from Arachic acid) - soybean (229), peanut (251), and rapeseed (259);

Behenoyl – peanut (251); and

Myristoyl - soybean (229), and palm kernel (277).

For margaroyl, a dictionary definition of the term is enclosed from “Webster’s Third International Dictionary” (Unabridged) G.C. Merriam & Co. , p. 1381,(1961) **(Reference 2)** – where it is noted that margaric acid is a mixture of stearic acid and palmitic acid. The vegetable sources for stearic acid and palmitic acid have already been given above.

All of the disclosed and claimed fatty acids or acyl groups appear to have vegetable sources. In view of this additional information, available in the open literature at the time of filing the application, it is respectfully submitted that the above objection is traversed and should be withdrawn.

4. (Referring now to Items 2 and 3 of the official action). Claims 6-17 and 19-22 stand rejected under 35 USC 112, first paragraph as failing to comply with the enablement requirement.

4A. One part of the rejection is based on the following: “Applicant cannot claim non-epoxidized esters in the dependent claims when the independent claim restricts the invention to epoxidized esters. Applicant respectfully traverses this part of the rejection.

Independent claim 1 is at issue here since claims 6-14 ultimately depend on Claim 1. Claim 1 has been amended at line 6, by the addition of the adjective “unsaturated” after “wherein said” to provide greater clarity. Antecedent is in the same line. Claim 1 at lines 5 and 6 requires that at least 80% of the fatty acids in the oil be “unsaturated”. This means the remainder are saturated so that it is not possible to form epoxidized derivatives from the remainder. Thus claim 1 allows

both saturated and unsaturated fatty acids that are consequently epoxidized and nonepoxidized. Applicant respectfully further refers the Examiner's attention to lines 7 and 8. Claim 1 only requires that the "esterified unsaturated fatty acids" be "substantially fully epoxidized". Therefore "nonepoxidized fatty acids" such as those that are based on saturated fatty acids as in the dependent claims appear to fulfill the requirements of claim 1 and the dependent claims 6-14 appear to be proper.

Claims 6-14 depend on claim 1, it is submitted that the above discussion traverses the rejection for these claims.

Claims 15-17 have been cancelled.

With respect to claim 19, the claim requires only that at least one of the selected R's be epoxidized to fulfill the definitional requirements in the preamble. For the same reason dependent claim 20 appears proper.

With respect to claim 21, the claim requires only that at least one of the R's be epoxidized to fulfill the definitional requirements in the preamble. For the same reason dependent claim 22 appears proper.

Applicant having fully traversed the grounds for rejection, respectfully requests withdrawal of this part of the rejection.

4B. Another part of the rejection is based on: "Disoyate and tetrasoyate esters cannot contain non-soy acyl groups."

It is respectfully submitted that all of the acyl groups are of soy origin. It has already been shown above in Section 3 of these REMARKS that linoleoyl, oleoyl, linolenoyl, palmitoleoyl, palmitoyl, stearoyl, arachidoyl, myristoyl, and margaroyl acyl groups are all available from soybean sources. The acyl group behenoyl is likewise available from soybean sources. Referring now to the Codex Alimentarius Commission, Twenty-fourth Session, Geneva, Switzerland, 2-7 July, 2001 (*Reference 3*), Table 1 thereof on page 28 shows that behenic acid (C22:0) is present in the soybean oil samples tested from not detectable to up to about 0.7%. It is noted that behenic acid is designated as (C22:0, i.e. 22 carbons in length and having no double bonds) in *Reference 1*, page 64. In a publication by Nexsoy, the behenic acid content of soybean oil is given at 0.37% (Spectrum Foods, Inc., P.O.

Box 30, 801 Yale Ave., Unit 5B, Swarthmore, PA 19081) (*Reference 4*).

In like way the acyl groups in currently amended Claim 9 for the "mixture of epoxidized methyl soyates" are all obtainable from soy sources. This applies to all soybean oil derivatives herein.

Applicant, having fully traversed the grounds for rejection, respectfully requests withdrawal of this part of the rejection.

4C. Another part of the rejection is based on "A mixture cannot contain only one ingredient (claim 9)".

Applicant has amended claim 9 so that "soyate" is now in the plural to read "soyates". Antecedent is found within the claim. As the examiner has noted a mixture requires more than one ingredient. Therefore there must be more than one soyate present or there can be no mixture. Accordingly the claim is amended to include a plurality of soyates, and the rejection is respectfully traversed.

4D. Another part of the rejection is based on: "Furthermore the epoxidized and non-epoxidized ingredients, which could be "R"-s, if all valences had not been already occupied by soy, are not of vegetable origin.

The issue of non-vegetable ingredients has already been addressed earlier in Section 3 of the present REMARKS and appears to answer the rejection noted here.

Applicant, having fully traversed this ground for rejection, respectfully requests withdrawal of this part of the rejection.

4E. Another part of the rejection is based on: 'Claim 1 excludes non-epoxidized and/or not vegetable derived fatty acid products.

The issue of Claim 1 excluding non-epoxidized fatty acids has already been discussed in Section 4A of the present REMARKS. Therefore, non-epoxidized fatty acids that are saturated are not excluded.

With regard to the not vegetable fatty acid products it was shown in an earlier Section 3 of the present REMARKS that all the fatty acids and fatty acid products were of vegetable origin.

Applicant having fully traversed the grounds for rejection, respectfully requests withdrawal of this part of the rejection.

5. (Referring now to Items 4, 5 and 6 of the Official Action) Claims 1, 4-6, and 8-12 stand rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

The Examiner has noted that in Claim 1, the phrase "a fatty acids" is grammatically incorrect. Applicant has deleted the "a" before "fatty acids".

The Examiner has noted that in Claim 4, penultimate line, the phrase "and mixtures of derivatives thereof" is indefinite. Applicant has deleted this phrase.

The Examiner has noted that in claims 5, 6, and 9, the phrase "said plasticizer composition" has no antecedent basis in claim 1. "Said plasticizer" is enough. Applicant has amended the claims to refer to "said plasticizer" only.

The Examiner has noted that in Claims 8, and 10-12 that the "said composition" should be replaced by "said plasticizer". Applicant has amended these claims accordingly.

Applicant thanks the examiner for the above helpful remarks and comments. Applicant having fully traversed the grounds for rejection, respectfully request withdrawal of this part of the rejection.

Applicant has found that claims 6 through 10, 12, 19, and 21 have a comma missing after "palmitoleoyl" in the Markush list. The comma has been added.

6. (Referring now to Items 7, 8, and 9 of the Official Action)

Applicant has cancelled independent claims 15-17.

7. New Claims

Applicant submits new claims 31 to 33.

Claim 31 uses the text of cancelled claim 15 as antecedent and is rewritten to depend on claim 1. Claim 31 now clearly provides that the plasticizer be a mixture. Antecedent for mixtures is found in the specification at page 7, line 24 to page 7, line 5. It is respectfully submitted that Claim 31 is patentable over the art as it further limits the plasticizer of claim 1 to a mixture of epoxidized pentaerythritol tetrasoyates.

Claim 32 uses the text of cancelled claim 16 as antecedent and is rewritten to depend on claim 1. Claim 32 now clearly provides that the plasticizer be a mixture. Antecedent for mixtures is found in the specification at page 7, line 24 to page 7, line 5. It is respectfully submitted that Claim 32 is patentable over the art as it further limits the plasticizer of claim 1 to a mixture of epoxidized propylene glycol disoyates.

Claim 33 uses the text of cancelled claim 17 as antecedent and is rewritten to depend on claim 1. Claim 33 now clearly provides that the plasticizer be a mixture. Antecedent for mixtures is found in the specification at page 7, line 24 to page 7, line 5. It is respectfully submitted that Claim 33 is patentable over the art as it further limits the plasticizer of claim 1 to a mixture of epoxidized ethylene disoyates.

All of the new claims appear to fall within the subject matter included in the examination up to now.

It is believed that the above amendments address the examiner's concerns regarding the claims. Accordingly it is respectfully submitted that the rejections have been traversed and that the remaining claims appear allowable.

8. Applicant hereby requests and petitions for a three month extension of time. The fee is enclosed herewith.

In light of the amendments and remarks herein, it is respectfully submitted that the present application appears to be fully in condition for allowance; therefore, allowance of the application is earnestly solicited. Applicant's undersigned attorney has made a good faith effort to meet the concerns expressed by the Examiner in the Official Action. If the Examiner still has some issues with the application, and has any suggestions as to how to address them, the Examiner is invited to call the Applicant's undersigned attorney at the phone number given below, so that those issues can be worked out.

Respectfully submitted,



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April 9, 2004

Fats and Oils Handbook

Michael Bockisch
Hamburg, Germany



Champaign, Illinois

This book is dedicated to my wife Gudrun to whom, in the course of doing this translation, revision, and update, I had to break my promise never to write a book again, and also to my son Benjamin and my daughter Valerie.

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Preface

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TABLE 2.6

Occurrence of Minor Fatty Acids in Different Oils (%)

In marine oil: herring oil ^a											
C _{16:1n-7}	0.3	C _{16:2n-6}	0.4	C _{16:2n-4}	0.6	C _{16:3n-4}	0.4	C _{16:4n-1}	0.6	C _{18:1n-5}	0.4
C _{18:2n-4}	0.1	C _{18:3n-6}	0.3	C _{18:3n-3}	0.9	C _{20:0}	0.1	C _{20:1n-9}	0.3	C _{20:2}	0.2
C _{20:4n-6}	0.4	C _{20:4n-3}	0.4	C _{22:2n-6}	0.2	C _{22:5n-3}	0.4	C _{24:1}	0.4	Phytanic	0.2
In vegetable oil: rapeseed oil ^b											
C _{14:1n-7}	tr	C _{14:1n-7}	0.007	C _{14:1n-5}	0.004	C _{14:2n-6}	0.02	C _{14:3n-3}	tr	C _{15:0}	0.02
C _{15:1n-10}	0.02	C _{15:1n-10}	0.01	C _{15:1n-8}	tr	C _{16:1n-7}	0.29	C _{16:2n-6}	0.07	C _{16:3n-3}	0.13
C _{17:0}	0.05	C _{17:1n-8}	0.06	C _{19:0}	0.02	C _{19:1n-10}	0.02	C _{20:2n-6}	0.20	C _{20:3n-6}	0.20
In animal fat: lard ^b											
C _{13:0}	0.08	C _{15:0}	0.02	C _{17:0}	0.29	C _{19:0}	0.03	C _{21:0}	0.004	C _{23:0}	0.02
C _{23:0br1}	0.008	C _{24:0br1}	0.004	C _{25:0br1}	0.02	C _{26:0br1}	0.02	C _{12:1}	0.02	C _{14:1}	0.03
C _{15:1}	0.01	C _{17:1}	0.22	C _{19:1}	0.06	C _{21:1}	0.004	C _{22:3}	0.02	C _{22:5}	0.02
C _{20:0br4}	0.02	C _{22:0br4}	0.02	C _{24:0br4}	0.03	C _{26:0br4}	0.03	C _{28:0br3}	0.09	C _{28:0br4}	0.20

^aSource: Sigurgísladóttir and Pálmadóttir (1993).^bSource: Sebedio (1979).^cSource: Iverson et al. (1965).

TABLE 2.7

Occurrence of Fatty Acids^a

Saturated fatty acids

C _n H _{2n} O ₂	Occurrence in common oils and fats
n	Trivial name
Sources with remarkable proportion (% of total fatty acids)	
4	Butyric
6	Caproic
8	Caprylic
10	Capric
12	Lauric
14	Myristic
16	Palmitic
18	Stearic
20	Arachic
22	Behenic
24	Lignoceric
26	Cerotic

milk fat (3–5)

milk fat (2–3), coconut oil (≤1)

milk fat (≤2), babassu oil (3–5), coconut oil (4–6), palm kernel oil (≤3), *cuphea painteri* (65–75), *hookeriana* (~65)

milk fat (3–4), babassu oil (4–7), coconut oil (6–9), *cuphea* species (88–92)

coconut oil, palm kernel oil (45–50), *Litsea sebifera* (~95), *Cinnamomum inners* (~95), *cuphea toluhana* (~65)

coconut, palm kernel, babassu oil (15–17), herring oil (4–8), nutmeg oil (≤77) *Gymnacranthera contracta* (~85), *Scyphocephalum ochocoa* (~80), *cuphea palustris* (~65)

coconut oil, palm kernel oil, babassu oil, sesame oil (7–10), cottonseed oil (17–25), milk fat (33–38), lard (20–30), tallow (25–40), herring oil (7–13) menhaden oil (15–30) *Myrica carolinensis* (~80), *Ochna squarrosa* (~75), *Rhus succedanea* (~70)

lard (16–24), tallow (15–30) *Canarium schweinfurthii* (85), *Garcinia* species (60–65)

peanut oil (5–7), milk fat (2–4) *nephelium* species (>30)

peanut oil (5–7), mustard seed oil (≤1,5) *lophira* species (20–35), *Psochocarpus tetragonolobus* (~20)

peanut oil (≤3), mustard seed oil (≤1), *adenanthera pav.* (~30), *eleagnus angustifolia* (~20), *tamarindus indica* (~20)

pentachletra macrophyllia (~5), *rumex pseudonatronatus* (~3), *vermonia anthelmica* (~3)

Continued

TABLE 2

(Continued)

Monouns

C_nH_{2n}O₂

n

Triv

12 Lau

14 Myl

16 Pal

18 Ole

18 Ela

18 Pet

18 Va

20 Ga

20 Eic

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TABLE 2.7
(Continued)

Monounsaturated fatty acids

$C_nH_{2n}O_2$ n	Trivial name	Occurrence in common oils and fats Sources with remarkable proportion (% of total fatty acids)
12	Lauroleic	sperm whale oil (4), thohaku nut oil
14	Myristoleic	milk fat, tissue fat, liver oil (≤ 1), whale oil (2,5), sperm whale oil (14) <i>pygnantus kombo</i> (20-23)
16	Palmitoleic	milk fat, tissue fat (≤ 5), fish oil (≤ 20), whale oil (≤ 15), sperm whale oil (≤ 27) <i>kermadecia sinuata</i> (~70), <i>doxantha unguis</i> (~65), <i>plumeria alba</i> (55-60)
18	Oleic	rapeseed oil (LEAR 55-65), peanut oil (45-65), sesame oil (35-50), corn oil (40-50), olive oil (55-85), goose fat (50-65) <i>amaranthus tricolor</i> (~90), <i>garcinia multiflora</i> (~88), <i>corylus avellana</i> (~85)
18	Elaidic	body fat of ruminants
18	Petroselinic	<i>Apium leptophyllum</i> (~85), <i>Deverra aphylla</i> (~85), <i>Umbelliferae</i> (18-70)
18	Vaccenic	butter fat (<2.5), beef tallow
20	Gadoleic	sperm whale oil (≤ 19)
20	Eicosenoic	jojoba oil (≤ 30), mustard seed oil (≤ 13), cod-liver oil (≤ 14) <i>Limantes species</i> (60-75)
22	Erucic	rapeseed oil (HEAR 40-65), mustard seed oil (≤ 50) <i>Crambe abbessynicum</i> (~60), <i>hispanica</i> (~55)

Polyunsaturated fatty acids

$C_nH_{2n}O_2$ n	x	Trivial name	Occurrence in common oils and fats Sources with remarkable proportion (% of total fatty acids)
18	4	Linoleic	safflower oil (≤ 80), sunflower oil (≤ 75), poppy seed oil (≤ 65) <i>Myrianthus species</i> (88-94), <i>betula platyphylla</i> (~88)
18	6	Linolenic	herring oil (≤ 20), menhaden oil (≤ 30), linseed oil (47) <i>Acacia lenticularis</i> (~80), <i>Euphorbia species</i> (75-78); (-linolenic: barley 1-2)
18	6	Elaeostearic	<i>Aleuritis species</i> (65-85), <i>Parinarium excelsum</i> (~60)
20	8	Arachidonic	cod-liver oil (≤ 25), herring oil (≤ 30), menhaden oil (≤ 29)
20	10	Timnodonic	fish oils, fish liver oil
22	10	Clupadonic	cod-liver oil (≤ 10), herring oil (≤ 23), menhaden oil (≤ 12), sardine oil (≤ 14)
22	12	Cervonic	fish oils

Special fatty acids

n	Trivial name	Occurrence in common oils and fats Sources with remarkable proportion (% of total fatty acids)
18	Ricinolic	castor oil (≤ 95)
24	Nisinic	tunny oil
24	Nervonic	brain cerebroside (70), <i>cardamine graeca</i> (> 50), <i>tropaeolum spp.</i> (> 40)
24	Cerebronic	brain cerebroside (15)
24	2-Hydroxynervonic	brain cerebroside (12)

^aFor the fatty acid composition of thousands of fats and oils of animal and vegetable origin, see among others Hilditch and Williams (1964) and Ucciani (1995).

Continued

TABLE 4.30
Fact File of Soybean Oil (Bean Oil)

German: Sojaöl	French: huile de soya	Spanish: aceite de soja
Relative density	(at 20°C; ref. water 20°C)	0.910–0.925
Refractive index	(n_D^{40})	1.466–1.470
Saponification value	(mg KOH/g oil)	189–195
Iodine value	(Wijs method)	120–143
Unsaponifiable matter	(g/kg oil)	<15
Melting point:	–9 to –11°C	Solidification point –8 to –18°C
Solids content at	(°C/°F) 0/32 5/41 10/0 20/68 30/86 35/95	
	(%) 0.5 0 0 0 0 0	
World market price	(U.S. \$/MT)	min Ø max
	1962–1995	157 440 1044
Price index (1995 average compared to average)	1962–1969	157 223 303
10 years ago	103%	1970–1979 220 487 303
20 years ago	104%	1980–1989 279 493 1044
30 years ago	262%	1990–1995 398 508 670

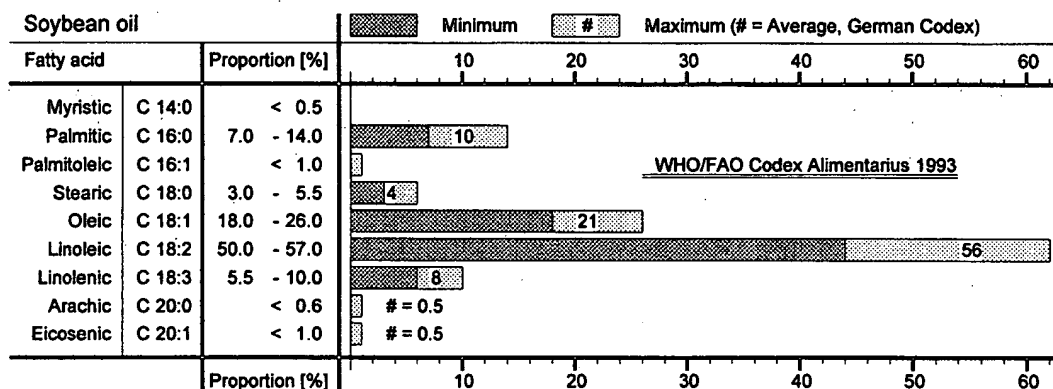


Fig. 4.49. Fact file of soybean oil (fatty acid composition).

4.3.2 Cottonseed Oil

4.3.2.1 Botany and History of Cotton. Cotton (*Gossypium*) is cultivated mainly for its fiber. The ratio of fibers to seed is ~1:2. The seed itself contains ~20–25% fat. From tools and fabrics found in excavations, it can be concluded that cotton has been cultivated for 4500–5000 years. Up to 600 B.C., India maintained a monopoly on cotton (called woven wind). In the period 600–500 B.C., cotton came to Egypt; later, in 333 B.C., it was imported to Europe by the Greek emperor, Alexander the Great. The oil content of the seeds is mentioned for the first time by the Greeks, Herodot and Theophrast. In the Middle Ages, the seed was rediscovered by Marco Polo (1271) who reported on it. Only in the 19th century did it become an item traded worldwide because only then did mechanical delinting, spinning and weaving equipment

TABLE 4.41
Fact File of Peanut Oil

German: Erdnußöl		French: huile d'arachide		Spanish: aceite de cacahuete		
Relative density		(at 20°C; ref. water 20°C)		0.914–0.917		
Refractive index		(n_D^{40})		1.460–1.465		
Saponification value		(mg KOH/g oil)		187–196		
Iodine value		(Wijs method)		80–106		
Unsaponifiable matter		(g/kg oil)		<10		
Cloud point:	–2°C		Solidification point	–2 to +3°C		
Solids content at	(°C/°F)	0/32	5/41	10/50	20/68	30/86
	(%)	<6	<5	<4	<2	0
World market price				(U.S. \$/MT)	min	Ø
						max
				1967–1994	236	686
Price index (1995 average compared to average)				1967–1970	236	287
10 years ago	111%			1970–1979	329	707
20 years ago	126%			1980–1989	446	754
25 years ago	273%			1990–1995	543	987

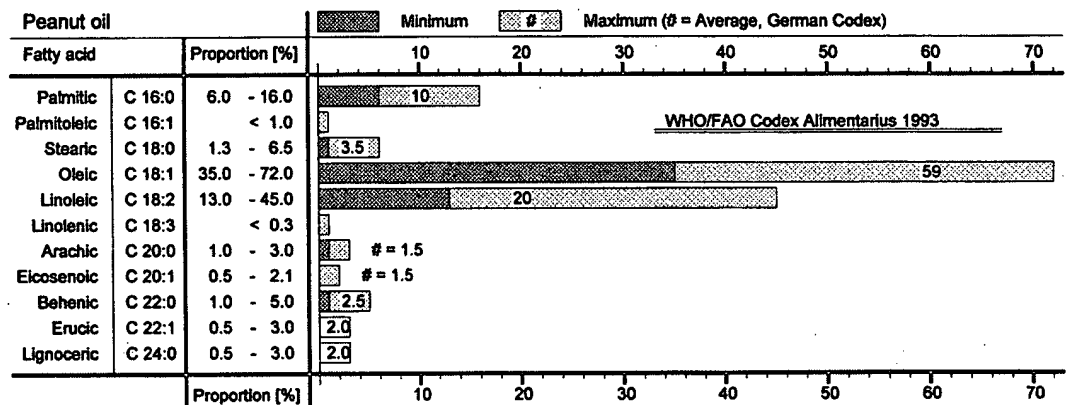


Fig. 4.73. Fact file of peanut oil (fatty acid composition).

4.3.5 Rapeseed

4.3.5.1 Botany and History of Rape. Rape (*Brassica napus*, *Brassica campestris*) is today cultivated mainly in Canada, Europe, India and China. It is much more durable than the other oilseeds, because it is able to withstand spring frost. It is therefore suitable for farming in the moderate climates of the north (or the far south).

Its origin is still not clear, but it appears to lie in Eurasia where it is already mentioned around 2000 B.C.; there is also a citation in Indian Sanskrit. In middle Europe, it is first mentioned in Holland in 1360 as "raepssaet."

Genotypes farmed today reach a height between 80 and 150 cm. Rape ripens 30–40 d after pollination. The pods have a length between 5 and 10 cm and are filled

TABLE 4.45
Fact File of Rapeseed Oil (LEAR)

German: Rapsöl	French: huile de colza	Spanish: aceite de colza
Relative density	(at 20°C; ref. water 20°C)	0.914–0.920
Refractive index	(n_D^{40})	1.465–1.467
Saponification value	(mg KOH/g oil)	182–193
Iodine value	(Wijs method)	110–126
Unsaponifiable matter	(g/kg oil)	<20
Crismer value		67–70
Brassica sterol	(% of total sterols)	>5
Cloud point:	–10 to –12°C	Solidification point <<0°C
Solids content at	(°C/°F) 0/32 5/41 10/50 20/68 30/86 35/95	
	(%) <1 0 0 0 0 0	
World market price	(U.S. \$/MT)	min Ø max
	1970–1995	208 480 968
Price index (1995 average compared to average)	1967–1970	236 287 359
10 years ago	118%	1970–1979 208 499 968
20 years ago	116%	1980–1989 199 464 863
25 years ago	213%	1990–1995 385 498 731

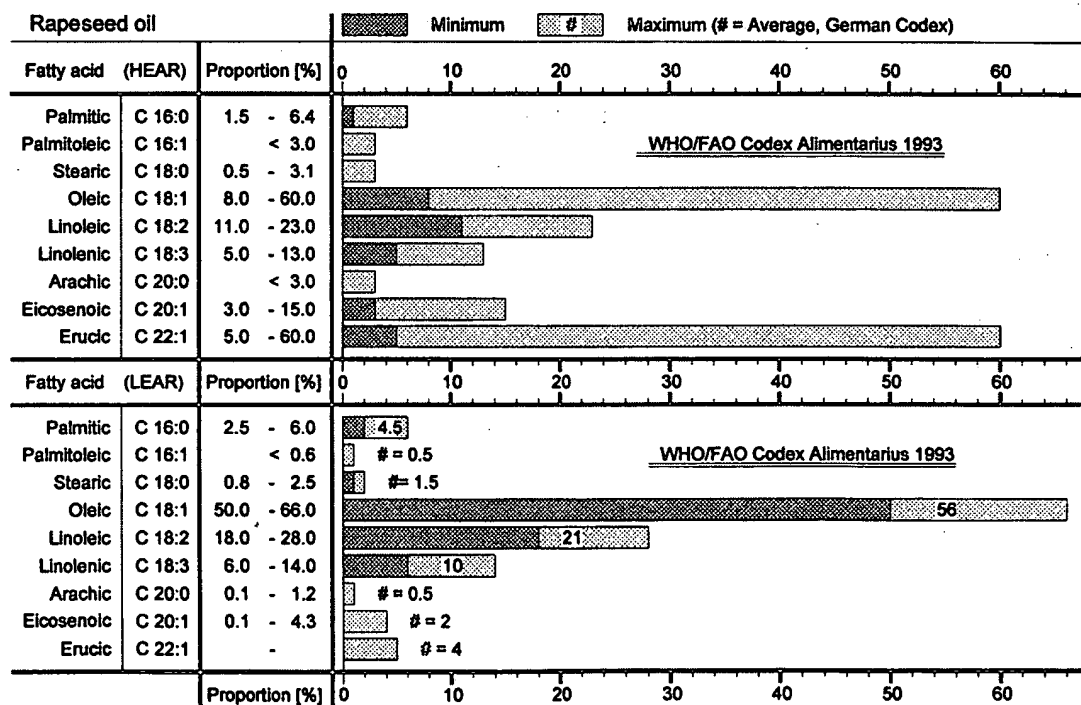


Fig. 4.83. Fact file of rapeseed oil (fatty acid composition).

TABLE 4.53
Fact File of Palm Kernel Oil

German: Palmkernfett		French: huile de palmiste			Spanish: aceite de palmiste		
Relative density		(at 40°C; ref. water 20°C)			0.899–0.914		
Refractive index		(n _D ⁴⁰)			1.448–1.452		
Saponification value		(mg KOH/g oil)			230–254		
Iodine value		(Wijs method)			14–20		
Reichert value					4–7		
Polenske value					8–12		
Unsaponifiable matter		(g/kg oil)			<10		
Melting point:		25–30°C			Solidification point		20–24°C
Solids content at	(°C/°F)	10/50	15/59	20/68	25/77	30/86	35/95
	(%)	70	59	39	17	0.5	0
World market price				(U.S. \$/MT)	min	Ø	max
Price index (1990 average compared to average)				1972–1995	216	589	1322
10 years ago		97%	1972–1979		218	607	1322
15 years ago		103%	1980–1989		216	575	1232

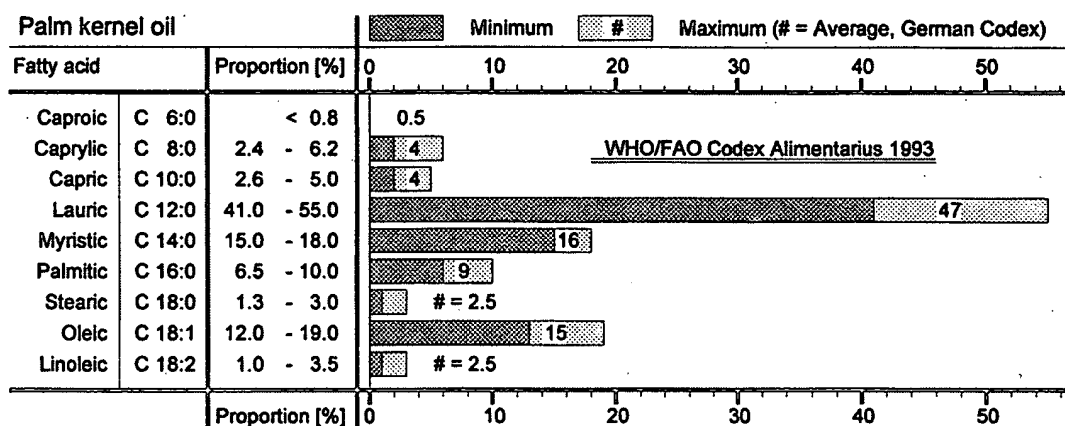


Fig. 4.105. Fact file of palm kernel oil (fatty acid composition).

decreased. Today, in some parts of Europe, there is a revival triggered by the Green movement and promoted by new varieties.

Linseed requires mean temperatures of 18–21°C. In warmer regions such as India, it is a winter crop because too high temperatures lead to plant diseases that do not occur at lower temperatures.

After fading of the white to blue-violet flowers, a 6- to 8-mm capsule develops that holds the shiny deep brown seeds in two chambers of two seeds each (Fig. 4.106; for seed composition, see Fig. 4.107). The seeds have a long, oval shape and are ~4 mm in length. Depending on whether the plant is cultivated for the flax

PE 1648
W39n3
C.2

REFERENCE 2

Webster's
Third
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Dictionary
OF THE ENGLISH LANGUAGE
UNABRIDGED

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REFERENCE 3

codex alimentarius commission



FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS

WORLD
HEALTH
ORGANIZATION



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ALINORM 01/17

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX ALIMENTARIUS COMMISSION

Twenty-fourth Session
Geneva, Switzerland, 2-7 July 2001

**REPORT OF THE SEVENTEENTH SESSION OF THE
CODEX COMMITTEE ON FATS AND OILS**

London, United Kingdom
19 – 23 February 2001

Note: This document incorporates Codex Circular Letter 2001/4-FO

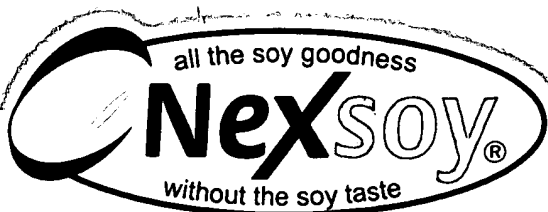
Table 1: Fatty acid composition of vegetable oils as determined by gas liquid chromatography from authentic samples ¹ (expressed as percentage of total fatty acids) (see Section 3.1 of the Standard) (continued)

↓

Fatty acid	Palm stearin	Rapeseed oil	Rapeseed oil (low erucic acid)	Safflowerseed oil	Safflowerseed oil (high oleic acid)	Soyabean oil	Sunflowerseed oil	Sunflowerseed oil (high oleic acid)
C18:1	15.5-36.0	8.0-60.0	51.0-70.0	8.4-21.3	70.0-83.7	17-30	14.0-39.4	75-90.7
C18:2	3.0-10.0	11.0-23.0	15.0-30.0	67.8-83.2	9.0-19.9	48.0 -59.0	48.3-74.0	2.1-17
C18:3	ND-0.5	5.0-13.0	5.0-14.0	ND-0.1	ND-1.2	4.5-11.0	ND-0.3	ND-0.3
C20:0	ND-1.0	ND-3.0	0.2-1.2	0.2- 0.4	0.3-0.6	0.1-0.6	0.1-0.5	0.2-0.5
C20:1	ND-0.4	3.0-15.0	0.1-4.3	0.1- 0.3	0.1-0.5	ND-0.5	ND-0.3	0.1-0.5
C20:2	ND	ND-1.0	ND-0.1	ND	ND	ND-0.1	ND	ND
C22:0	ND-0.2	ND-2.0	ND-0.6	ND-1.0	ND-0.4	ND-0.7	0.3-1.5	0.5-1.6
C22:1	ND	> 2.0-60.0	ND-2.0	ND-1.8	ND-0.3	ND-0.3	ND-0.3	ND-0.3
C22:2	ND	ND-2.0	ND-0.1	ND	ND	ND	ND-0.3	ND
C24: 0	ND	ND-2.0	ND-0.3	ND-0.2	ND-0.3	ND-0.5	ND-0.5	ND-0.5
C24:1	ND	ND-3.0	ND-0.4	ND-0.2	ND-0.3	ND	ND	ND

ND - non detectable, defined as ≤ 0.05%

¹ Data taken from species as listed in Section 2.



REFERENCE 4

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ORGANIC SOYBEAN OIL SPECIFICATION SHEET

DESCRIPTION: All Nexsoy Soybean Oils are naturally expelled soybean oils, which have been expelled without the use of solvents or other chemicals. The bulk organic soybeans are first cleaned of all foreign matter before they are mechanically extruded. The resulting meal is then mechanically expelled, after which the oil is sent to storage tanks. The soy oil is naturally cold-pressed, which provides the maximum amount of tocopherols.

PRODUCT:		Crude, Naturally Expelled Organic Soybean Oil, Certified Kosher**			
SHELF LIFE:		Minimum of three years at room temperature and dim light.			
TYPICAL ANALYSIS:					
*Appearance:	Brilliant Dark Golden	*Moisture & Volatiles %:			.03%
*Free Fatty Acid, % max:	3%	*Total Tocopherols, ppm:			1516
*Phosphorus, ppm:	200	*Color: Yellow			40
*Peroxide Value (meq/kg):	0.3	Red			3.5
*Iodine Value:	133	*Flash Point, Degrees F:			300 Degrees F
FATTY ACID COMPOSITION, %					
C16: 0 Palmitic	10.14%	C18: 2 Linoleic	51.47%	C22: 0 Behenic:	0.37%
C17: 0 Margaric	0.11%	C18: 3 Linolenic	8.31%	C24: 0 Lognoceric:	0.12%
C18: 0 Stearic	4.20%	C20: 0 Arachidic	0.35%	Other:	0.17%
C18: 1 Oleic	24.31%	C20: 1 Gadoleic	0.19%		

* Applications: Used by manufacturers for cooking oil, baked goods, among others. Not for frying.

** Available as Non-GMO or Organically Certified Non-GMO

PRODUCT:		Degummed, Naturally Expelled Organic Soybean Oil, Certified Kosher**			
SHELF LIFE:		Minimum of three years at room temperature and dim light.			
TYPICAL ANALYSIS:					
*Appearance:	Brilliant Dark Golden	*Moisture & Volatiles %:			.03%
*Free Fatty Acid, % max:	3%	*Total Tocopherols, ppm:			1447
*Phosphorus, ppm:	25	*Color: Yellow			40
*Peroxide Value (meq/kg):	0.3	Red			3.5
*Iodine Value:	133	*Flash Point, Degrees F:			560 Degrees F
FATTY ACID COMPOSITION, %					
C16: 0 Palmitic	10.14%	C18: 2 Linoleic	51.47%	C22: 0 Behenic:	0.37%
C17: 0 Margaric	0.11%	C18: 3 Linolenic	8.31%	C24: 0 Lognoceric:	0.12%
C18: 0 Stearic	4.20%	C20: 0 Arachidic	0.35%	Other:	0.17%
C18: 1 Oleic	24.31%	C20: 1 Gadoleic	0.19%		

* Applications: Used by manufacturers for cooking oil, frying, baked goods, among others.

** Available as Non-GMO or Organically Certified Non-GMO

PRODUCT:		Refined, Bleached & Deodorized, Naturally Expelled Organic Soybean Oil, Certified Kosher**			
SHELF LIFE:		Minimum of one year at room temperature and dim light.			
TYPICAL ANALYSIS:					
*Appearance:	Brilliant Light Golden	*Moisture & Volatiles %:		.06%	
*Free Fatty Acid, % max:	0.03%	*Total Tocopherols, ppm:		1250	
*Phosphorus, ppm:	3	*Color: Yellow		5.80	
*Peroxide Value (meq/kg):	0.70	Red		0.60	
*Iodine Value:	132	*Flash Point, Degrees F:		570 Degrees F	
FATTY ACID COMPOSITION, %					
C16: 0 Palmitic	10.14%	C18: 2 Linoleic	53.10%	C22: 0 Behenic:	0.37%
C17: 0 Margaric	0.11%	C18: 3 Linolenic	7.9%	C24: 0 Lognoceric:	0.12%
C18: 0 Stearic	4.20%	C20: 0 Arachidic	0.20%	Other:	0.17%
C18: 1 Oleic	23.10%	C20: 1 Gadoleic	0.19%		

* Applications: Used by manufacturers for cooking oil, frying, baked goods, among others.

** Available as Non-GMO or Organically Certified Non-GMO

Nexsoy® Oils are produced by Thumb Oilseed Producers Cooperative in Uby, MI and are marketed and sold exclusively by Spectrum Foods, Inc.